

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. After amending the claims as set forth above, claims 1-5 and 7-24 are now pending in this application.

Applicants wish to thank the Examiner for the careful consideration given to the claims.

Rejection of claims 1-5 and 7-21 based on 35 U.S.C. 112

Claims 1-5 and 7-12 are rejected under 35 U.S.C. 112, first paragraph, for allegedly failing to comply with the written description requirement. This rejection is traversed for the following reasons.

Claim 1 has been amended to remove the recitation of the inner annular bulk metal member being “disposed to be radially adjacent to the porous metal plate.”

Claim 1 has been recited to recite “an inner annular bulk metal member which is a gas impermeable member radially next to and fixed to the porous metal plate.” Support for this feature of claim 1 can be found in the specification. For example, Fig. 3 of the specification shows that the inner annular bulk metal member 47 is a member radially next to and fixed to the porous metal plate 37. Support for the inner annular bulk member 47 being a gas-impermeable metal member and being fixed to the porous metal plate is found on page 7, lines 16-19 of the specification.

For at least these reasons, favorable reconsideration of the rejection is respectfully requested.

Rejections based on Bossel

Claims 1-5 and 7-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,344,290 (“Bossel”) and U.S. Patent 5,645,626 (“Edlund”). For at least the following reasons, this rejection is traversed.

Claim 1 (as amended) recites, among other things, a cell plate, an electroductive gas separator, and a holder member. The cell plate is provided with a supporting body including a porous metal plate; a cell formed on the supporting body, the cell including a solid electrolyte layer, a cathode substance layer formed on one surface of the solid electrolyte layer, and an anode substance layer formed on the other surface of the solid electrolyte layer;

and an inner annular bulk metal member which is a gas impermeable member radially next to and fixed to the porous metal plate. The electroconductive gas separator cooperates with the cell plate to form a gas passage. The holder member clamps the inner annular bulk metal member without clamping the porous metal plate.

Support for the amendments to claim 1 can be found in the specification. For example, Fig. 3 of the specification shows that the inner annular bulk metal member 47 is a member radially next to and fixed to the porous metal plate 37. Support for the inner annular bulk member 47 being a gas-impermeable metal member and being fixed to the porous metal plate is found on page 7, lines 16-19 of the specification. Support for the holder member clamping the inner annular bulk metal member without clamping the porous metal plate is found on page 13, lines 7-14 and Fig. 3¹ of the specification.

Due to the specific structure of the invention of claim 1, the undue stress to the cell plate including the cell and the porous substrate during the actual usage of the fuel cell to which vibration and heat are applied can be reduced, resulting in increased reliability of the fuel cell.

No combination of Bossel and Edlund teaches or suggests all the features of claim 1. Bossel relates to a fuel cell stack with solid electrolytes. More specifically, the electric power generating elements of Bossel (each including an electrolyte 17, a cathode 18 and an anode 19 formed on a gas-permeable substrate 2) are stacked alternately with respective separating plates 1 spanning between an end plate 29 and an initial plate 30. (Fig. 6 of Bossel.) However, the fuel cell stack of Bossel is held via the gas-permeable substrates 2 by respective annular seals 23 at the central portion and via the electric power elements by the separating plates 1 between the end plate 29 and the initial plate 30 and with the aid of the plate springs 31 and the helical spring 32. Bossel does not teach or suggest, for example, “an inner annular bulk metal member which is a gas impermeable member radially next to and fixed to the porous metal plate.” Specifically, Bossel does not include an inner annular bulk metal member which is a gas impermeable member (as correctly pointed out on page 4 of the Office Action) and disposed to be radially next to and fixed to the gas permeable substrate 2 (which the PTO considers to be the porous metal plate of claim 1).

¹ Fig. 3 shows the holder member 15 clamping the annular bulk member 47 without clamping the porous metal plate 37.

Furthermore, Bossel does not teach or suggest “a holder member clamping the inner annular bulk metal member without clamping the porous metal plate.” Specifically, the contact 22 of Bossel (which the PTO considers to be the holding member of claim 1) does not clamp only the annular bulk metal member (which Bossel does not even teach) without clamping the gas permeable substrate 2 (which the PTO considers to be the porous metal plate of claim 1). Indeed, the contact region 22 of Bossel is merely the two separating plates 1 and 20 of Bossel being formed in such a way as to contact each other at a non-central aperture 6. (Column 6, lines 55-59 and Figs. 1A and 2 of Bossel.) In other words, the contact region 22 is not a separate element from the separating plate 1 (which the PTO considers to be the cell plate of claim 1) and the separating plate 20 (which the PTO considers to be the electroconductive gas separator). (Column 6, lines 55-59 of Bossel.) Because the contact region 22 is not a separate element from the separating plate 1 and the separating plate 20, it cannot be considered to be the holding member of claim 1. The PTO has asserted that “applicants’ arguments are not commensurate with the scope of the claims, there is no recitation in claim 1 reciting that the holder member must be a separate element from any of the other elements as recited in the claims.” (Page 2 of the Office Action.) However, the holder member is listed as a separate element from the cell plate and the electroconductive gas separator in claim 1. The PTO is essentially trying to read out one of the claim limitations by merging three distinct elements of claim 1 into two elements, contrary to PTO regulations and case law. (See MPEP 2131² and MPEP 2143³.)

Bossel is completely silent as to the specific structure of the invention of claim 1 especially in which the inner annular bulk metal member is the gas impermeable member and radially next to and fixed to the porous metal plate, and the holder member clamps the inner annular bulk metal member without clamping the porous metal plate. Accordingly, Bossel does not teach or suggest these features.

² “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).”

³ The Supreme Court in *KSR Int’l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727 (2007) has not removed the requirement that the prior art reference (or references when combined) must teach or suggest all the claim limitations. Indeed, *KSR* emphasized cases where all features are known. Furthermore, the exemplary rationales listed in MPEP 2143 suggests that all elements (when the references are combined) need to be known in the art to support a conclusion of obviousness.

Edlund does not cure the deficiencies of Bossel. Edlund relates to a composite hydrogen separator element and module. As shown in Fig. 3a, in the separation element 20, the coating metal member 30 is layered to the support matrix 31 through the intermediate, layer 32. Also, the two pairs of the metal spacers 33 are disposed at the outer peripheral portion of the separation element 20 and the peripheral portion of the central hole 21. (Figs. 2a and 3a of Edlund.) However, one pair of the metal spacers 33 disposed at the outer peripheral portion of the separation element 20 and the other pair of the metal spacers 33 disposed at the peripheral portion of the central hole 21 are layered on the support matrix 31 and are not radially next to the porous support matrix 31. (Fig. 3a and column 7, lines 51-60 of Edlund.)

Even if one of ordinary skill in the art would apply the metal spacers 33 of Edlund (which the PTO equates with the inner annular bulk metal member of claim 1) to the gas-permeable substrate 2 (which the PTO considers to be the porous metal plate of claim 1) to reinforce the opening thereof and to reduce the risk of damage as suggested by the PTO (a point that Applicants do not concede), the resulting structure involves the gas-permeable substrate 2 of Bossel (which the PTO considers to be the porous metal plate of claim 1) being clamped by the contact region 22 of Edlund (which the PTO considers to be the holder member of claim 1) via the separating plates 1 and 20 (which is an integral part of the contact region 22). As a result, the proposed combination does not teach or suggest a holder member clamping the inner annular bulk metal member without clamping the porous metal plate. Thus, the proposed structure completely differs from the specific structure of the invention of claim 1. Accordingly, claim 1 is allowable.

Additionally, even if one of ordinary skill in the art would apply the metal spacers 33 of Edlund (which the PTO equates with the inner annular bulk metal member of claim 1) to the gas-permeable substrate 2 (which the PTO considers to be the porous metal plate of claim 1) to reinforce the opening thereof and to reduce the risk of damage as suggested by the PTO (a point that Applicants do not concede), the resulting structure still does not involve a holder member that is distinct element from the cell plate and the electroconductive gas separator because the contact region 22 of Edlund (which the PTO considers to be the holder member of claim 1) is an integral part of the separating plate 1 (which the PTO considers to be the cell plate of claim 1) and the separating plate 20 (which the PTO considers to be the

electroconductive gas separator of claim 1). As a result, the proposed combination does not teach or suggest a cell plate and a electroconductive gas separator that are distinct elements from the holder member. Thus, the proposed structure completely differs from the specific structure of the invention of claim 1. Accordingly, claim 1 is allowable.

Claims 2-5 and 7-21 depend from and contain all the features of claim 1, and are allowable for the same reasons as claim 1, without regard to the further patentable features contained therein.

For at least these reasons, favorable reconsideration of the rejection is respectfully requested.

Allowability of claims 22-24

Claims 22-24 depend from and contain all the features of claim 1, and are allowable for the same reasons as claim 1. For at least this reason, allowance of claims 22-24 is respectfully requested.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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